UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,211	04/21/2004	Fei Ge	50277-2433	9360

42425   7590   03/11/2010
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EXAMINER
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ART UNIT	PAPER NUMBER
2168	

MAIL DATE	DELIVERY MODE
03/11/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/830,211	GE ET AL.
	Examiner	**Art Unit**	
	JAY A. MORRISON	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2010*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-14,16,21-23,25-35,37,39-42,46,48,49 and 51-61* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-14,16,21-23,25-35,37,39-42,46,48,49 and 51-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/4/10, 2/4/10*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

2/4/2010 has been entered.

Remarks

2.   Claims 1,2,4-14,16,21-23,25-35,37,39-42,46,48,49 and 51-61 are pending.

Information Disclosure Statement

3.   The information disclosure statement (IDS) submitted on 2/4/2010 has been

considered by the examiner.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

    1.   Determining the scope and contents of the prior art.
    2.   Ascertaining the differences between the prior art and the claims at issue.
    3.   Resolving the level of ordinary skill in the pertinent art.
    4.   Considering objective evidence present in the application indicating
            obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

5.   Claims 1,4-14,16,21-22,25-35,37,39,42,46,48,49 and 51-61 are rejected under

35 U.S.C. 103(a) as being unpatentable over Aboulnaga et al. ('Aboulnaga' hereinafter)

(Estimating the Selectivity of XML Path Expressions for Internet Scale Applications, by

Aboulnaga et al, Proceedings of the 27th VLDB Conference, Roma, Italy, 2001) in view

of <u>Sedlar</u> (Patent Number 6,427,123).

As per claim 1, <u>Aboulnaga</u> teaches

A method comprising the computer-implemented steps of: (see abstract)

gathering statistics by a database server about nodes that are stored in a

database repository that is managed by the database server; (section 1, sixth

paragraph)

wherein said nodes form a hierarchy; each of which contains a plurality of XML

elements; (section 1, ninth paragraph)

storing said statistics; (section 1, sixth paragraph)

and in response to a request to the database server for access to one or more

XML resources from said database repository, the database server computing a

computational cost associated with each of two or more methods of accessing said one

or more XML resources from said database repository, based on said statistics; (section

2, last paragraph)

wherein the method is performed by one or more computing devices; (abstract)

wherein XML files of said nodes are XML resources, and wherein the step of

computing a computational cost comprises (a) computing a selectivity value for each of

one or more predicates, from said request, that contain operators on said database

repository and (b) computing a computational cost of traversing, to locate a particular

XML resource specified in said request, an index in which said XML resources are indexed to said database repository. (section 2, first paragraph and fourth paragraph)

Aboulnaga does not explicitly indicate "wherein each node is either an XML file or an XML file container; wherein at least one node in the hierarchy is an XML file container that contains a plurality of XML files".

However, Sedlar discloses "wherein each node is either an XML file or an XML file container; wherein at least one node in the hierarchy is an XML file container that contains a plurality of XML files" (hierarchical system with index entries for files in a file system, column 5, lines 20-27; note that files on same level in hierarchy can be considered in same node).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Aboulnaga and Sedlar because using the steps of "wherein each node is either an XML file or an XML file container; wherein at least one node in the hierarchy is an XML file container that contains a plurality of XML files" would have given those skilled in the art the tools to improve the invention by providing a way to label information from diverse data sources. This gives the user the advantage of being able to search content across a multitude of domains in a single search.

As per claim 4, Aboulnaga teaches

the step of storing statistics comprises storing said statistics in a relational table of a database of which said database repository is part. (section 1, sixth paragraph)

As per claim 5, <u>Aboulnaga</u> teaches

XML files of said nodes are XML resources, and wherein said relational table is a

first relational table that is a different table than a second relational table in which said

XML resources are stored in said database repository. (section 1, eighth paragraph)

As per claim 6, <u>Aboulnaga</u> teaches

said relational table is a relational table in which said XML resources are stored

in said database repository. (section 1, eighth paragraph)

As per claim 7, <u>Aboulnaga</u> teaches

wherein the step of storing statistics comprises storing said statistics in a

hierarchical index table in which said XML resources are indexed to said database

repository. (section 1, ninth paragraph)

<u>Aboulnaga</u> does not explicitly indicate "XML files of said nodes are XML

resources".

However, <u>Sedlar</u> discloses "XML files of said nodes are XML resources" (column

5, lines 32-34).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine <u>Aboulnaga</u> and <u>Sedlar</u> because using the steps of

"XML files of said nodes are XML resources" would have given those skilled in the art

the tools to improve the invention by providing a way to label information from diverse

data sources. This gives the user the advantage of being able to search content across

a multitude of domains in a single search.

As per claim 8, Aboulnaga teaches

the step of computing a computational cost comprises computing a selectivity

value for each of one or more predicates, from said request, that contain operators on

said database repository. (section 2, last paragraph)

As per claim 9,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 10,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 11, Aboulnaga teaches

wherein the step of computing a computational cost comprises computing a

computational cost of traversing, to locate a particular XML resource specified in said

request, an index in which said XML resources are indexed to said database repository.

(section 2, first paragraph)

Aboulnaga does not explicitly indicate "XML files of said nodes are XML resources".

However, Sedlar discloses "XML files of said nodes are XML resources" (column 5, lines 32-34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Aboulnaga and Sedlar because using the steps of "XML files of said nodes are XML resources" would have given those skilled in the art the tools to improve the invention by providing a way to label information from diverse data sources. This gives the user the advantage of being able to search content across a multitude of domains in a single search.

As per claim 12, Aboulnaga teaches

computing said computational cost of traversing an index comprises computing a computational cost associated with one or more CPUs used for said traversing. (section 2, last paragraph)

As per claim 13, Aboulnaga teaches

computing said computational cost of traversing an index comprises computing a computational cost associated with reading data blocks in which portions of said index are stored. (section 3.1, last paragraph)

As per claim 14, Aboulnaga teaches

computing said computational cost of traversing an index comprises computing

(a) a computational cost associated with one or more CPUs used for said traversing and

(b) a computational cost associated with reading data blocks in which portions of said

index are stored. (section 2, last paragraph)

As per claim 16, Aboulnaga teaches

said request for access to one or more XML resources from said database

repository is a SQL query. (section 2, first paragraph)

As per claim 21, Aboulnaga teaches

said database repository is part of a relational database management system.

(section 2, first paragraph)

As per claim 22,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claims 25-29,

These claims are rejected on grounds corresponding to the arguments given

above for rejected claims 4-8 and are similarly rejected.

As per claim 30,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected.

As per claim 31,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected.

As per claim 32, <u>Aboulnaga</u> teaches

wherein the step of computing a computational cost comprises computing a computational cost of traversing, to locate a particular XML resource specified in said request, an index in which said XML resources are indexed to said database repository. (section 2, fourth paragraph)

<u>Aboulnaga</u> does not explicitly indicate "XML files of said nodes are XML resources".

However, <u>Sedlar</u> discloses "XML files of said nodes are XML resources" (column 5, lines 32-34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine <u>Aboulnaga</u> and <u>Sedlar</u> because using the steps of "XML files of said nodes are XML resources" would have given those skilled in the art the tools to improve the invention by providing a way to label information from diverse data sources. This gives the user the advantage of being able to search content across a multitude of domains in a single search.

As per claim 33, Aboulnaga teaches

computing said computational cost of traversing an index comprises computing a computational cost associated with one or more CPUs used for said traversing. (section 2, last paragraph)

As per claim 34, Aboulnaga teaches

computing said computational cost of traversing an index comprises computing a computational cost associated with reading data blocks in which portions of said index are stored. (section 3.1, last paragraph)

As per claim 35, Aboulnaga teaches

computing said computational cost of traversing an index comprises computing (a) a computational cost associated with one or more CPUs used for said traversing and (b) a computational cost associated with reading data blocks in which portions of said index are stored. (section 2, first paragraph and fourth paragraph)

As per claim 37, Aboulnaga teaches

said request for access to one or more XML resources from said database repository is a SQL query. (section 2, first paragraph)

As per claim 39, Aboulnaga teaches

the step of storing comprises storing said statistics as an XML data type in a

schema-based table in said database management system. (section 2, fourth

paragraph)

As per claim 42,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 46,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 48,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 49, Aboulnaga teaches

the step of gathering statistics comprises gathering statistics about at least one

of: (a) a median depth of a plurality of paths to a plurality of nodes in said hierarchy, and

(b) a maximum depth of a plurality of paths to a plurality of nodes in said hierarchy; and

wherein the plurality of nodes are accessible via a path through a specified node.

(section 3, third paragraph)

As per claim 51, <u>Aboulnaga</u> teaches

the request to the database server for access to one or more XML resources is

through a view. (section 2, fourth paragraph)

As per claim 52, <u>Aboulnaga</u> teaches

the request includes one or more predicates and said one or more predicates

includes at least one operator from the group of: UNDER_PATH, and EQUALS_PATH.

(section 1, ninth paragraph)

As per claim 53, <u>Aboulnaga</u> teaches

a particular predicate of said one or more predicates includes an UNDER_PATH

operator; wherein the particular predicate is associated with (a) a depth of infinity, and

(b) a particular node; and wherein computing a selectivity value for the particular

predicate further comprises: (section 1, ninth paragraph)

determining a first number of nodes, in said hierarchy, that are accessible via a

path through the particular node, determining a second number of nodes, in said

hierarchy, that are accessible via a path through a root node of said hierarchy, dividing

the first number of nodes by the second number of nodes to produce a third number,

and multiplying the third number by 100 to produce the selectivity value. (section 3.2,

first paragraph)

As per claim 54, Aboulnaga teaches

a particular predicate of said one or more predicates includes an UNDER_PATH operator; wherein the particular predicate is associated with (a) a depth of one, and (b) a particular node; and wherein computing a selectivity value for the particular predicate further comprises: determining a first number of nodes, in said hierarchy, that are accessible via a path through the particular node and that are in a level of said hierarchy that is immediately under a level of said particular node, determining a second number of nodes, in said hierarchy, that are accessible via a path through a root node of said hierarchy, dividing the first number of nodes by the second number of nodes to produce a third number, and multiplying the third number by 100 to produce the selectivity value. (section 1, ninth paragraph)

As per claim 55, Aboulnaga teaches

a particular predicate of said one or more predicates includes an EQUALS_PATH operator; and wherein computing a selectivity value for the particular predicate further comprises: determining a particular number of nodes, in said hierarchy, that are accessible via a path through a root node of said hierarchy, taking the inverse of the particular number of nodes, and multiplying the inverse of the particular number of nodes by 100 to produce the selectivity value. (section 3.2, first paragraph)

As per claim 56, Aboulnaga teaches

a particular predicate, from said request, includes an UNDER_PATH operator; wherein the particular predicate is associated with (a) a depth of infinity, and (b) a particular node; and wherein computing said computational cost associated with reading data blocks in which portions of said index are stored further comprises: determining a number of XML file containers, in said hierarchy, that are accessible via a path through the particular node to produce said computational cost associated with reading data blocks in which portions of said index are stored. (section 2, last paragraph, section 3.3, first paragraph)

As per claim 57, <u>Aboulnaga</u> teaches

a particular predicate, from said request, includes an UNDER_PATH operator; wherein the particular predicate is associated with (a) a depth of one, and (b) a particular node; and wherein computing said computational cost associated with reading data blocks in which portions of said index are stored further comprises: determining a number of XML file containers, in said hierarchy, that are accessible via a path through the particular node and that are in a level of said hierarchy that is immediately under said level of the particular node to produce said computational cost associated with reading data blocks in which portions of said index are stored. (section 2, last paragraph, section 3.3, first paragraph)

As per claim 58,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 59,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

As per claim 60, <u>Aboulnaga</u> teaches

the request to the database server for access to one or more XML resources is

through a view. (section 2, fourth paragraph)

As per claim 61,

This claim is rejected on grounds corresponding to the arguments given above

for rejected claim 1 and is similarly rejected.

6.   Claims 2, 23 and 40-41 are rejected under 35 U.S.C. 103(a) as being

unpatentable over <u>Aboulnaga et al.</u> ('Aboulnaga' hereinafter) (Estimating the Selectivity

of XML Path Expressions for Internet Scale Applications, by Aboulnaga et al,

Proceedings of the 27th VLDB Conference, Roma, Italy, 2001) in view of <u>Sedlar</u> (Patent

Number 6,427,123) and further in view of <u>Polyzotis et al.</u> (' <u>Polyzotis</u>' hereinafter)

(Statistical Synopses for Graph-Structured XML Databases, by Polyzotis et al., ACM

SIGMOD 2002, June 4-6, Madison, Wisconsin, USA).

    As per claim 2,

    Neither Aboulnaga nor Sedlar explicitly indicate "the step of gathering statistics

comprises gathering one or more data from a group consisting of: a total number of

nodes, in said hierarchy, that are accessible via a path through a specified node, a total

number of XML file containers, in said hierarchy, that are accessible via a path through

said specified node, a total number of nodes, in said hierarchy, that are accessible via a

path through said specified node and that are in a level of said hierarchy that is

immediately under a level of said specified node, a total number of XML file containers,

in said hierarchy, that are accessible via a path through said specified node and that are

in a level of said hierarchy that is immediately under said level of said specified node,

and a number of levels, from a root node of said hierarchy, at which said specified node

is organized in said hierarchy."

    However, Polyzotis discloses "the step of gathering statistics comprises

gathering one or more data from a group consisting of: a total number of nodes, in said

hierarchy, that are accessible via a path through a specified node, a total number of

XML file containers, in said hierarchy, that are accessible via a path through said

specified node, a total number of nodes, in said hierarchy, that are accessible via a path

through said specified node and that are in a level of said hierarchy that is immediately

under a level of said specified node, a total number of XML file containers, in said

hierarchy, that are accessible via a path through said specified node and that are in a level of said hierarchy that is immediately under said level of said specified node, and a number of levels, from a root node of said hierarchy, at which said specified node is organized in said hierarchy" (section 4.2.1, first paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Aboulnaga, Sedlar and Polyzotis because using the steps of "the step of gathering statistics comprises gathering one or more data from a group consisting of: a total number of nodes, in said hierarchy, that are accessible via a path through a specified node, a total number of XML file containers, in said hierarchy, that are accessible via a path through said specified node, a total number of nodes, in said hierarchy, that are accessible via a path through said specified node and that are in a level of said hierarchy that is immediately under a level of said specified node, a total number of XML file containers, in said hierarchy, that are accessible via a path through said specified node and that are in a level of said hierarchy that is immediately under said level of said specified node, and a number of levels, from a root node of said hierarchy, at which said specified node is organized in said hierarchy" would have given those skilled in the art the tools to improve the invention by enabling accurate compile-time selectivity estimates for complex path expressions. This gives the user the advantage of better performance when performing queries.

As per claim 23,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 2 and is similarly rejected.

As per claim 40,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 2 and is similarly rejected.

As per claim 41,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 2 and is similarly rejected.

Response to Arguments

7.   Applicant's arguments with respect to claims 1,2,4-14,16,21-23,25-35,37,39-42,46,48,49 and 51-61 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8.   The prior art made of record, listed on form PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay A. Morrison whose telephone number is (571) 272-7112. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jay A Morrison/
Examiner, Art Unit 2168

Jay Morrison
TC2100